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United States Department of Agriculture  
Agricultural Research Administration  
Bureau of Animal Industry

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REPORTS ON DEVELOPMENTS  
IN THE  
CAMPAIGN FOR THE ERADICATION OF  
FOOT-AND-MOUTH DISEASE  
in MEXICO

No. 19

Note: This report has been prepared on the basis of the best information available at the time of compilation but is subject to later revision. It covers the principal developments since the issuance of the 18th report of February 7, 1949.



## Vaccination Schedule Set Forward

Duration of immunity tests conducted with the Commission-produced vaccine show that protection against the disease cannot be expected beyond four months from the time of vaccination. Although reports from Europe, where foot-and-mouth disease vaccines were developed, indicated protection could be expected for about six months, more recent European reports and laboratory and field tests in Mexico indicate protection is afforded for a lesser period. These findings have resulted in a change of vaccination schedules and call for all susceptible animals in the quarantine zone to be vaccinated at least three times in one year.

Late in February plans were completed for starting the second vaccination in all of the nine operating districts. Sub-headquarters have been established with inspection and vaccination brigades assigned and well under way on the second vaccination. The third vaccination will be started approximately 4 months after the second.

The vaccine-production program in Mexico at present is ample to meet field needs despite the accelerated program caused by the start of the second round of vaccinations. Production has been held at about 100,000 doses a day since January 1. During March the production of vaccine in the Commission's laboratories amounted to 2,300,000 doses, bringing the cumulative total for 11-month period to more than 12 million doses. (For further information on vaccines see section on Research).

## Inspection of Herds Increased

During March the inspection of cattle and other susceptible animals was increased to 3,240,233 head, which is an increase of more than a million over the number inspected the previous month. These figures reflect the emphasis the Commission is giving to periodic inspection after the animals have been vaccinated. Inspection brigades also normally precede the vaccinators, but the success of the program depends on the immediate spotting of outbreaks which might occur after vaccination. When active infection is determined to exist in a herd, the entire herd and all exposed animals are slaughtered and buried to prevent further spread of the disease. An exception to this general rule is in recently vaccinated herds where only those animals actively infected are slaughtered.

Vaccination teams also have increased their activities as shown by the March total of 2,404,970 large and small animals vaccinated. These figures are considerably larger than last month. There were 1,785,700 head vaccinated in February, and 1,775,186 head in January. The cumulative total to the end of April was 9,504,241 head vaccinated of which 1,077,176 had been vaccinated for the second time and 20,394 for the third time.

## Disinfection Operations

Twelve new disinfection stations have been established along the main quarantine lines within recent weeks. This brings the total number of stations to 170, and strengthens the effectiveness of the quarantine program. Typical of the disinfection operations are the totals released for March. These show that the Commission workers disinfected 128 cargo planes,



167 passenger planes, 15,636 trucks, 6,911 railroad cars and 1,137 boats and barges. Other operations were conducted, such as the cleaning and disinfection of premises where actively diseased animals had been slaughtered.

#### No Changes in Quarantine Line

No changes have been made in the main Northern and Southern Quarantine lines within the past two months. The present lines represent natural boundaries, in so far as possible, where it is easier to control the movement of susceptible animals. The eastern section of the northern quarantine line from Tamiahua, Veracruz to Tamazunchale, San Luis Potosi is now fence.

The Commission has established entry points along the line where cattle are vaccinated as they enter the quarantined area. No movement of susceptible animals is permitted from the quarantine zone to the clean area under any circumstances.

One reported outbreak above the quarantine line in the vicinity of Aguascalientes, upon thorough investigation, was found not to be foot-and-mouth disease.

#### New Infection Reported

An outbreak of foot-and-mouth disease has been reported in the vicinity of Ojuelos de Jalisco, approximately one-quarter of a mile below the northern quarantine line. Ojuelos is located approximately half way between Lagos de Moreno and the city of San Luis Potosi, and is 384 miles southwest of Brownsville Texas.

The Bureau and the Joint Commission are apprehensive concerning this latest outbreak which occurred among animals vaccinated once, and forces of the inspection, quarantine, vaccination and disinfection divisions have been rushed into the area to wall off the focus of infection to prevent spread of the disease to the thousands of susceptible animals pastured north of the quarantine line.

Prior to this, no active infection had been reported in Mexico by field forces for a period of 29 days. This indicates the insidiousness of the disease and the necessity for continuous precautionary measures.

#### Less Resistance Met

Resistance to the control and eradication program has been on the wane since the riot in the village of San Pedro El Alto in which Robert L. Proctor, a U. S. livestock inspector, was killed. Most of the opposition encountered in recent weeks is passive and usually takes the form of non-cooperation with inspection and vaccination brigades. Failure to round up susceptible stock, and lending little assistance to brigades in handling the animals, are the principal complaints. In a few instances serious trouble might have developed if it had not been for prompt action on the part of the Mexican army guards assigned to the brigades.

In late March the extremely Nationalistic Sinarquista Union came out in support of the program, urging the largely rural membership to cooperate in the program for the welfare of Mexico. At a national meeting, Mexican cattlemen also endorsed the program.

Most of the opposition is believed due to the action of unscrupulous cattle buyers who work ahead of the first vaccination brigades. They are believed to start rumors that vaccination will kill the cattle or make them sterile. Thus purchases can be made at below-market prices. The Commission is endeavoring to counteract this propaganda through the use of information men, or "informadores." These men precede the inspection and vaccination brigades and explain the purposes of the program.

Because of high illiteracy in remote areas there is no other means of informing the people of the program. Even this method has its difficulties, as many Indian dialects are spoken exclusively in many places. In such an atmosphere rumors and natural suspicion against "foreigners" make each new location a potential trouble spot. In one remote area of Guerrero, which vaccination brigades will reach in a few weeks, little exploration has been made because of hostility of native Indians.

#### Commission Personnel Increased

The personnel of the Commission has been increased to handle the additional work load brought on by the second vaccination and the increased frequency of inspection. The total for the month of March was 4,013, which included 804 in the United States section, 238 in the Mexican section, and 2,976 clerks, laborers, and unskilled workers in the field and Mexico City. In addition there were 400 part-time helpers employed in the field as laborers, guides, and vaccination helpers.

#### Research

Scientific studies in European laboratories in which the Bureau of Animal Industry has been cooperating have been seriously affected by the current epizootics of foot-and-mouth disease in western Europe. The epizootics originated near the Spanish border of France during the latter part of 1948 and have since then spread through France, Belgium, Luxembourg, The Netherlands, and the French, British and United States zones of occupied Germany. Some outbreaks also have occurred in Denmark, Sweden and Switzerland, and there has been another flare up of the disease in Italy. Several outbreaks have occurred in England, although it is believed that these outbreaks are not connected with the outbreaks on the continent but have their origin in the importing of South American meat.

The foot-and-mouth disease laboratories in Europe have been subjected to pressing demands for vaccine to control the disease in the several countries. Directors of the laboratories in England and The Netherlands have been called upon for extended consultations on the disease in connection with outbreaks in Africa and Palestine. Although hampered by these developments, research is continuing on problems relating to the Mexican campaign, particularly means of improving vaccine and extending the duration of immunity in vaccinated animals.



Vaccines produced in Mexico have been found to produce a very substantial initial resistance to the disease. Very severe tests carried out two weeks following vaccination (it takes that long for the resistance to become established) have shown that the Commission vaccine consistently gives a high level of resistance. However, preliminary tests on duration of immunity, as well as observations of vaccination results in the field, have shown that the level of resistance decreases very materially within four months. The period between vaccinations, therefore has been set at four months rather than six months as it was previously, and in the meantime additional experimental studies are under way by the Commission in Mexico and in Europe to learn more accurately the level of resistance during the four-month period.

Investigations of the types of virus prevailing in current outbreaks of the disease in Mexico are continuing. Only type A virus of foot-and-mouth disease has been identified thus far. On the other hand, both known types of the virus of vesicular stomatitis have been found in Mexico. The fact is of great importance, since this disease closely resembles foot-and-mouth disease and can be differentiated from it only by laboratory procedures. A unit for serological study of viruses prevailing in Mexico is being established to supplement the animal inoculation tests used in the exacting diagnosis of vesicular stomatitis and foot-and-mouth disease. It is of considerable interest to note that in the present outbreaks in Europe, type C virus has been found in Italy, and types A and O have been involved in other areas of western Europe. In parts of Germany there have been a number of variants of the A type virus. Each of these variants is sufficiently different to cause difficulties in a vaccination program.

During April 42 animals were destroyed because of illegal entry into the United States. This number included 13 cattle and 2 hogs at El Centro, Calif.; 13 cattle, 3 hogs, and 7 goats, at El Paso, Tex.; and 2 goats and 2 hogs at San Antonio, Tex. Under cooperative arrangements with the Bureau of Customs, patrol riders apprehended several smugglers who were turned over to Customs officials. District inspectors reported the inspection of 102,007 automobiles, 679 trucks, 15,309 trucks inspected (cleaned and disinfected when necessary), and 28 railroad cars cleaned and disinfected. Products seized and destroyed because of illegal entry included 3,049 pounds of meat, 856 pounds of dairy products, 36 pounds of hides, and 1,270 pounds of hay or straw. Seizure also was made of 2,000 meat sandwiches.

#### Purchases of Canned Meat in Northern Mexico

For the year ending June 30, 1949, contracts were made in northern Mexico for the purchase of 136 million pounds of canned meat and gravy, with plants having the option to deliver 14 million pounds of canned edible meat by-products. These contracts were made for production in 13 plants, 12 of which have been in production during the year. By the end of March 1949 production for contracts had been completed in 7 plants.

Production of canned meat - 3 types; namely, meat and gravy, meat food product, and liver spread, for the fiscal year July 1947 to June 30, 1948, totaled 43,270,044 pounds. For the present fiscal year - July 1, 1948, to April 2, 1949, the quantity of canned meats produced total 117,399,026 pounds, making a grand total produced of 160,669,070 pounds.



For the fiscal period 1947-48, the number of cattle slaughtered for canned meat production amounted to 184,078, and for the 1948-49 fiscal year through April 2, cattle slaughtered amounted to 467,348, making a grand total of 651,426 cattle slaughtered in the area for the production of canned meats covering contracts issued by the United States Department of Agriculture. The attached table shows the location and the number of cattle slaughtered at each plant.

All the canned meat produced in the year ended June 30, 1948, were sold for export but since that time sales have been very disappointing regardless of the fact that export outlets have been canvassed thoroughly.

Total sales as of April 2, 1949, amounted to only 48,480,951 pounds, leaving stocks available for sale as of April 2, amounting to approximately 112 million pounds. Sales thus far have been made principally to the U. S. Army for use in occupied areas, also to U. S. Foreign Aid programs in Italy and Austria. Through March 1949 only 1,818,358 pounds have been sold and paid for from E. C. A. funds. All sales, with the exception of a small amount (about 200,000 pounds) have been at prices equal to the buying price plus cost of storage and transportation.

Cattle Slaughter in Northern Mexico for Production of Canned Meats  
for Sale to  
United States Department of Agriculture  
1947 - 1949

Contractor	Location	1947-1948		1948-1949		Total through April 2, 1949
		Aug. 21, 1947 to		July 1, 1948 to		
		June 30, 1948		April 2, 1949		
		Number		Number		Number
Carne Refrigerada e Inspeccionada, S. A.	Torreon, Coahuila	--		14,574		14,574
Empacadora Trevino, S. A.	Monterrey, Nuevo Leon	4,770		50,601		55,371
Enlatadora y Empacadora de Durango	Torreon, Coahuila	--		--		--
Enlatadora de Magdalena, S. A.	Magdalena, Sonora	24,358		43,734		68,092
Frigorifica y Empacadora de Sonora, S. A.	Hermosillo, Sonora	--		26,384		26,384
Frigorifica y Empacadora de Sonora, S. A.	Agua Prieta, Sonora	--		22,308		22,308
Productos de Cananea, S.A., de C. V.	Cananea, Sonora	22,848		42,134		64,982
Union Ganadera Regional de Chihuahua						
Empacadora de Ciudad Juarez, S. A.	Juarez, Chihuahua	27,795		76,338		104,133
Juarez Meat Products	Juarez, Chihuahua	86,822		48,820		135,642
Empacadora de Casas Grandes, S. A.	N. Casas Grandes	--		5,719		5,719
Empacadora de Chihuahua, S. A.	Chihuahua, Chihuahua	--		79,577		79,577
Empacadora de Ciudad Camargo, S. A.	Camargo, Chihuahua	--		15,281		15,281
Union Ganadera Regional de Coahuila	Piedras Negras, Coah.	17,485		41,878		59,363
TOTAL		184,078		467,348		651,426

Prepared by:  
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